

## SEQUENCE LISTING

<110> Cooper, Richard K.  
 Enright, Frederick M.  
 Fioretti, William C.

<120> Gene Therapy Using Transposon-Based Vectors

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 <141> 2006-06-22

<150> PCT/US2004/43092  
 <151> 2004-12-24

<150> US 60/592,098  
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 aagtgccac 7689

<210> 8  
 <211> 6  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Modified Kozak sequence

<400> 8  
 accatg

6

<210> 9  
 <211> 7  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Kozak sequence

<400> 9

accatgg

7

<210> 10

<400> 10  
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<210> 11

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 11

aagatgt

7

<210> 12

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 12

acgatga

7

<210> 13

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

<400> 13

aagatgg

7

<210> 14

<211> 7

<212> DNA

<213> Artificial Sequence

<220>

<223> Kozak sequence

&lt;400&gt; 14

gacatga

7

&lt;210&gt; 15

&lt;211&gt; 7

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Kozak sequence

&lt;400&gt; 15

accatga

7

&lt;210&gt; 16

&lt;211&gt; 7

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Kozak sequence

&lt;400&gt; 16

accatgt

7

&lt;210&gt; 17

&lt;211&gt; 315

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Base pairs 10651-11058 from GenBank Accession No Y00407 (Gallus sp.)

&lt;400&gt; 17

tctgccattg ctgcttcctc tgcccttcct cgtcactctg aatgtggctt ctctgctact 60

gccacagcaa gaaataaaat ctcaacatct aaatggggtt cctgagggtt ttcaagagtc 120

gttaagcaca ttccttcccc agcaccctt gctgcaggcc agtgccaggc accaacttgg 180

ctactgctgc ccatgagaga aatccagttc aatattttcc aaagcaaaat ggattacata 240

tgccctagat cctgattaac aggcgtttgt attatctagt gctttcgctt caccagatt 300

atccattgc ctccc 315

&lt;210&gt; 18

&lt;211&gt; 361

<212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 18  
 ggcgcctgga tccagatcac ttctggctaa taaaagatca gagctctaga gatctgtgtg 60  
 ttgggttttt gtggatctgc tgtgccttct agttgccagc catctgttgt ttgcccctcc 120  
 cccgtgcctt ccttgaccct ggaaggtgcc actcccactg tcctttccta ataaaatgag 180  
 gaaattgcat cgcattgtct gagtaggtgt cattctatct tgggggggtgg ggtggggcag 240  
 cacagcaagg gggaggattg ggaagacaat agcaggcatg ctggggatgc ggtgggctct 300  
 atgggtacct ctctctctct ctctctctct ctctctctct ctctctctcg gtacctctct 360  
 c 361

<210> 19  
 <211> 350  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 19  
 ggggatcgct cttagcgat ccgggatctc gggaaaagcg ttggtgacca aaggtgcctt 60  
 ttatcatcac tttaaaaata aaaaacaatt actcagtgcc tggtataagc agcaattaat 120  
 tatgattgat gcctacatca caacaaaaac tgatttaaca aatggttggt ctgccttaga 180  
 aagtatattt gaacattatc ttgattatat tattgataat aataaaaacc ttatccctat 240  
 ccaagaagtg atgcctatca ttggttgga tgaacttgaa aaaaattagc cttgaataca 300  
 ttactggtaa ggtaaagcc attgtcagca aattgatcca agagaaccaa 350

<210> 20  
 <211> 908  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 1 - 1158 from GenBank Accession No. X00345 (Gallus sp.)

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<400> 20
tgaatgtggt cttgtgttat caatataaat cacagttagt gatgaagttg gctgcaagcc      60
tgcacagctt cagctacttg gctgcatttt gtatttggtt ctgtaggaaa tgcaaaaggt      120
tctaggctga cctgcacttc tatccctctt gccttactgc tgagaatctc tgcagggtttt      180
aattgttcac attttgctcc catttacttt ggaagataaa atatttacag aatgcttatg      240
aaacctttgt tcatttaaaa atattcctgg tcagcgtgac cggagctgaa agaacacatt      300
gatcccgtag tttcaataaa tacatatggt ccatatattg tttctcagta gcctcttaaa      360
tcatgtgcgt tgggtgcacat atgaatacat gaatagcaaa ggtttatctg gattacgctc      420
tggcctgcag gaatggccat aaaccaaagc tgagggaaga gggagagtat agtcaatgta      480
gattatactg attgctgatt gggttattat cagctagata acaacttggg tcagggtgcca      540
ggtcaacata acctgggcaa aaccagtctc atctgtggca ggaccatgta ccagcagcca      600
gccgtgaccc aatctaggaa agcaagtagc acatcaattt taaatttatt gtaaattgccc      660
tagtagaagt gttttactgt gatacattga aacttctggt caatcagaaa aagggtttttt      720
atcagagatg ccaaggtatt atttgatttt ctttattcgc cgtgaagaga atttatgatt      780
gcaaaaagag gagtggttac ataaactgat aaaaaacttg aggaattcag cagaaaacag      840
ccacgtgttc ctgaacattc ttccataaaa gtctcaccat gcctggcaga gccctattca      900
ccttcgct                                         908

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<210> 21
<211> 901
<212> DNA
<213> Artificial Sequence

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<220>
<223> Base pairs 431-1331 from GenBank Accession No. J00895 (Gallus
      sp.)

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```

<400> 21
gaggtcagaa tgggtttcttt actgtttgtc aattctatta tttcaataga gaacaatagc      60
ttctataact gaaatatatt tgctattgta tattatgatt gtcctcga ccatgaacac      120
tcctccagct gaatttcaca attcctctgt catctgccag gccattaagt tattcatgga      180
agatctttga ggaacactgc aagttcatat cataaacaca tttgaaattg agtattgttt      240
tgcatgtgat ggagctatgt tttgctgtat cctcagaaaa aaagtttggt ataaagcatt      300

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cacacccata aaaagataga tttaaattatt ccagctatag gaaagaaagt ggcgtctgtc 360  
 ttcactctag tctcagttgg ctcttcaca tgcattgttc tttattttctc ctattttgtc 420  
 aagaaaataa taggtcacgt cttgtttctca cttatgtcct gcctagcatg gctcagatgc 480  
 acgttgtaga tacaagaagg atcaaagaa acagacttct ggtctgttac tacaaccata 540  
 gtaataagca cactaactaa taattgctaa ttatgttttc catctctaag gttcccacat 600  
 ttttctgttt tcttaaagat cccattatct gggtgtaact gaagctcaat ggaacatgag 660  
 caatatttcc cagtcttctc tcccatccaa cagtcctgat ggattagcag aacaggcaga 720  
 aaacacattg ttaccagaa ttaaaaacta atatttgctc tccattcaat ccaaaatgga 780  
 cctattgaaa ctaaaatcta acccaatccc attaaatgat ttctatggcg tcaaagggtca 840  
 aacttctgaa gggaacctgt gggtgggtca caattcaggc tatatattcc ccaggggtca 900  
 g 901

<210> 22  
 <211> 680  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 22  
 ccgggctgca gaaaaatgcc aggtggacta tgaactcaca tccaaaggag cttgacctga 60  
 tacctgattt tcttcaaact ggggaaacaa cacaatccca caaacagct cagagagaaa 120  
 ccatcactga tggctacagc accaaggtat gcaatggcaa tccattcgac attcatctgt 180  
 gacctgagca aatgattta tctctccatg aatgggtgct tctttccctc atgaaaaggc 240  
 aatttcaca ctcaaatat gcaacaaaga caaacagaga acaattaatg tgctccttcc 300  
 taatgtcaaa attgtagtgg caaagaggag aacaaaatct caagttctga gtaggtttta 360  
 gtgattggat aagaggcttt gacctgtgag ctacactgga cttcatatcc ttttggataa 420  
 aaagtgtttt tataactttc aggtctccga gtctttattc atgagactgt tggtttaggg 480  
 acagaccac aatgaaatgc ctggcatagg aaagggcagc agagccttag ctgacctttt 540  
 cttgggacaa gcattgtcaa acaatgtgtg aaaaaactat ttgtactgt ttgcacagct 600

gtgctgggca gggcaatcca ttgccaccta tcccaggtaa ccttccaact gcaagaagat 660  
 tgttgcttac tctctctaga 680

<210> 23  
 <211> 72  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 23  
 gtggatcaac atacagctag aaagctgtat tgccttttagc actcaagctc aaaagacaac 60  
 tcagagttca cc 72

<210> 24  
 <211> 62  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> From GenBank Accession No. J00895 (Gallus sp.)

<400> 24  
 acatacagct agaaagctgt attgccttta gcactcaagc tcaaaagaca actcagagtt 60  
 ca 62

<210> 25  
 <211> 1158  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 66 - 1223 from GenBank Accession No. J00895 (Gallus sp.)

<400> 25  
 atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa ggagctcaaa 60  
 gtccaccatg ccaatgagaa catcttctac tgccccattg ccatcatgtc agctctagcc 120  
 atgggtatacc tgggtgcaaa agacagcacc aggacacaga taaataaggt tggtcgcttt 180  
 gataaacttc caggattcgg agacagtatt gaagctcagt gtggcacatc tgtaaacggt 240  
 cactcttcac ttagagacat cctcaaccaa atcaccaaac caaatgatgt ttattcggtc 300

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agccttgcca gtagacttta tgctgaagag agatacccaa tcctgccaga atacttgag 360
tgtgtgaagg aactgtatag aggaggcttg gaacctatca actttcaaac agctgcagat 420
caagccagag agctcatcaa ttctgggta gaaagtcaga caaatggaat tatcagaaat 480
gtccttcagc caagctccgt ggattctcaa actgcaatgg ttctgggtta tgccattgtc 540
ttcaaaggac tgtgggagaa aacatttaag gatgaagaca cacaagcaat gcctttcaga 600
gtgactgagc aagaaagcaa acctgtgcag atgatgtacc agattggttt atttagagt 660
gcatcaatgg cttctgagaa aatgaagatc ctggagcttc catttgccag tgggacaatg 720
agcatgttgg tgctgttgcc tgatgaagtc tcaggccttg agcagcttga gagtataatc 780
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gtgtacttac ctcgcatgaa gatggaggaa aaatacaacc tcacatctgt cttaatggct 900
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gctgaccatc cattcctctt ctgtatcaag cacatcgcaa ccaacgccgt tctcttcttt 1140
ggcagatgtg tttccctt                                     1158

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<210> 26
<211> 53
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Synthetic

```

```

<400> 26
atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa gga 53

```

```

<210> 27
<211> 103
<212> DNA
<213> Artificial Sequence

```

```

<220>
<223> Synthetic

```

```

<400> 27
atgggctcca tcggcgcagc aagcatggaa ttttgttttg atgtattcaa ggagctcaaa 60

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gtccaccatg ccaatgagaa catctttctac tgccccattg cca 103

<210> 28  
 <211> 63  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 1145 - 1198 from GenBank Accession No. X00345 (Gallus sp.)

<400> 28  
 atgaggggga tcatactggc attagtgtc acccttgtag gcagccagaa gtttgacatt 60  
 ggt 63

<210> 29  
 <211> 260  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Base pairs 117 - 377 from GenBank Accession No. NM000207 (Homo sapiens)

<400> 29  
 tttgtgaacc aacacctgtg cggctcacac ctggtggaag ctctctacct agtgtgcggg 60  
 gaacgaggct tcttctacac acccaagacc cgccgggagg cagaggacct gcaggtgggg 120  
 caggtggagc tgggcggggg ccctggtgca ggcagcctgc agcccttggc cctggagggg 180  
 tccctgcaga agcgtggcat tgtggaacaa tgctgtacca gcattctgtc cctctaccag 240  
 ctggagaact ctgcaactag 260

<210> 30  
 <211> 13  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 30

Lys Tyr Lys Lys Ala Leu Lys Lys Leu Ala Lys Leu Leu  
 1 5 10

<210> 31  
 <211> 39  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 31  
 aaatacaaaa aagcactgaa aaaactggca aaactgctg

39

<210> 32  
 <211> 4  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> (Gly Pro Gly Gly) x where x is an integer from 3-9

<400> 32

Gly Pro Gly Gly  
 1

<210> 33  
 <211> 12  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 33

Gly Pro Gly Gly Gly Pro Gly Gly Gly Pro Gly Gly  
 1 5 10

<210> 34  
 <211> 15  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 34

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser  
 1 5 10 15

<210> 35  
 <211> 20  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 35

Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly  
 1 5 10 15

Gly Gly Gly Ser  
 20

<210> 36  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 36

Pro Ala Asp Asp Ala  
 1 5

<210> 37  
 <211> 29  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 37

Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro  
 1 5 10 15

Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp  
 20 25

<210> 38

<211> 16  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 38

Ala Thr Thr Cys Ile Leu Lys Gly Ser Cys Gly Trp Ile Gly Leu Leu  
 1 5 10 15

<210> 39  
 <211> 30  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 39

Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Thr Thr Cys Ile Leu Lys  
 1 5 10 15

Gly Ser Cys Gly Trp Ile Gly Leu Leu Asp Asp Asp Asp Lys  
 20 25 30

<210> 40  
 <211> 5  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

<400> 40

Asp Asp Asp Asp Lys  
 1 5

<210> 41  
 <211> 50  
 <212> PRT  
 <213> Artificial Sequence

<220>  
 <223> Synthetic

&lt;400&gt; 41

Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro  
 1 5 10 15

Ala Asp Asp Ala Pro Ala Asp Asp Ala Pro Ala Asp Asp Ala Thr Thr  
 20 25 30

Cys Ile Leu Lys Gly Ser Cys Gly Trp Ile Gly Leu Leu Asp Asp Asp  
 35 40 45

Asp Lys  
 50

&lt;210&gt; 42

&lt;211&gt; 48

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic

&lt;400&gt; 42

atctcgagac catgtgtgaa cttgatattt tacatgattc tctttacc

48

&lt;210&gt; 43

&lt;211&gt; 36

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic

&lt;400&gt; 43

gattgatcat tatcataatt tccccaaagc gtaacc

36

&lt;210&gt; 44

&lt;211&gt; 22

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic

&lt;400&gt; 44

Met Glu His Trp Ser Tyr Gly Leu Arg Pro Gly Lys Phe Ala Ile Cys



1                      5                      10                      15

Lys Lys Phe Ala Ile Cys  
20

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<210> 45
<211> 24
<212> PRT
<213> Artificial Sequence
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<220>  
<223> Synthetic

<400> 45

Glu His Trp Ser Tyr Gly Leu Arg Pro Gly Lys Phe Ala Lys Phe Ala  
1 5 10 15

Lys Lys Phe Ala Lys Phe Ala Lys  
20

```
<210> 46
<211> 30
<212> PRT
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